



The table below identifies major changes incorporated into this document.

Date	Version	Description
7/8/2015	1.0	Initial Draft Version
7/13/2015	1.1	Added: KB3026376 requirement
7/20/2015	1.2	Removed KB2974335/6 since the new KB3026376 rollup has that specific patch included Minor details added to SQL Server, SQL CE, Crystal Reports and installation of ETS.
8/10/2015	1.3	Added: Appendix B – Laptop and Infrastructure Configuration of Port :5555
9/8/2015	1.4	Purpose: Updating to accommodate state users Updated links for SQL 2012 Added: full hard drive encryption and antivirus, state local firewall configurations,
9/17/2015	1.5	Reformatting and consolidating documents.
9/28/2015	1.6	Added Appendix D – renamed old Appendix D to Appendix E
3/4/2016	2.0	Modified installation checklist to include <u>all</u> ETS applications Updated formatting & Fixed dead links Added Table of Contents Reordered & consolidated appendices – Added ETS-ALERT/SQL 2012 workaround (new Appendix D)
9/8/2017	3.0	Updated ETS Pre-requisites 1) Updated .NET Framework (4.5.2 → 4.5.2+) 2) Upgraded Crystal Reports (Service Pack 10 → Service Pack 18) 3) Removed all SQL 2008 references. Full migration to SQL Server 2012 (no backward compatibility needed due to ETS-ALERT retirement) Appendixes removed
6/25/2018	4.0	Updated ETS Pre-requisites 1) Updated .NET Framework (4.5.2+ → 4.6.2+) 2) (Temporary) 2008 SQL Server Native Client

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Downloads

Link to CSBS Website – ETS Technical Requirements (contains important documents and scripts for state employees)

<https://www.csbs.org/regulatory/examtools/Pages/ETSTechnicalRequirements.aspx>

All ETS machines **must** have the following:

Full Hard Drive Encryption	All machines must have full-hard drive encryption enabled using Bitlocker or similar Digital Loss Prevention (DLP) software (e.g. Check Point).
Antivirus	All machines must have antivirus software installed and running in “active scan” mode.

The table below lists ETS prerequisites in **optimal installation order** and provides download information.

Table 1: ETS Prerequisites

Order	Item	Version / Notes	Where it can be found
1.0	.NET 4.6.2+ (KB3151800)	Updated requirement starting in ETS v1.4.1 (previous 4.5.2) https://www.microsoft.com/en-us/download/details.aspx?id=53344	https://download.microsoft.com/download/F/9/4/F942F07D-F26F-4F30-B4E3-EBD54FABA377/NDP462-KB3151800-x86-x64-AllOS-ENU.exe (offline installer)
2.0	KB2779272 Hotfix	Update adds support for some new glyphs and features in Windows 8 to common fonts in Windows 7 and in Windows Server 2008 R2 (only needed for Win 7 machines)	http://support.microsoft.com/kb/2779272
3.0	SAP Crystal Reports for Visual Studio 2010 – SP18	Service Pack 18 – 64 bit Updated requirement starting in ETS v1.3.2 Note: The 32-bit version of Crystal Reports is <u>no longer required</u> .	http://downloads.businessobjects.com/akdlm/cr4vs2010/CRforVS_re_dist_install_64bit_13_0_18.zip
4.0	PDFNet	1.0 –driver that assists the library used in converting files to PDF	http://pdftron.com/downloads/pdfnetDrivers.zip
(4.1)	Microsoft Visual C++ 2010 Redistributable Package (64 bit)	This library is required for PDFNet to be installed correctly. It should be included with the Win 7 install by default; however, we have seen a few states that require this package in order to install PDFNET successfully.	64 bit: http://www.microsoft.com/en-us/download/details.aspx?id=14632
5.0	URL / ACL Script for Collaboration	The URLACL is a configuration setting that allows the ETS application to host a web service for local network data collaboration.	Apply configurations via ETS-FREDDY: https://ets.fdic.gov/ets-freddy/ or See Appendix B
6.0	SQL Server 2012 Express (Service Pack 2) Instance Name: FDIC2008	Microsoft SQL Server 2012 Express (Service Pack 2) - 11.0.5058 **Refer to Appendix A for detailed installation instructions** Hardware and Software Requirements for Installing SQL Server 2012 (MSDN)	http://www.microsoft.com/en-us/download/details.aspx?id=43351 64-bit: download Express Advanced (1.9GB) SQLEXPRADV_x64_ENU.exe
(6.1)	SQL Server Native Client (2008)	The 2008 Native Client is only required to address an issue with ETS Asset Review Reports; the root cause is tentatively scheduled to be resolved in ETS v1.4.2	https://www.microsoft.com/en-us/download/confirmation.aspx?id=16978 X64 Package (sqlncli.msi)

Preferred Installation Order for ALL ETS Applications

Follow these steps to install all ETS applications (ETS, ETS Help Files, ETS-FREDDY and ETS-Training) and their required pre-reqs on a new laptop. Consult this guide for detailed installation instructions.

**** Please contact the Examiner Help Desk at ehelp@fdic.gov or 1-877-334-2999, then option 2 for additional support ****

Notes:

****Suggested Operating System: Windows 7, 64-bit****

****Windows XP is no longer supported****

****Windows 8 & Windows 10: Only minimal testing conducted thus far. We cannot guarantee full ETS functionality****

1 – ETS-FREDDY

1. Install ETS-FREDDY (*Detailed instructions available at <https://ets.fdic.gov/ets-freddy/>*)
 - i. This will help guide you through the installation steps below.
 - ii. Verify each prerequisite after installation.

2 – ETS

1. Install .NET Framework 4.6.2
 - i. RESTART
2. Install Crystal Reports (SP18)
 - i. RESTART
3. Install PDFNet 1.0
 - ii. Install redistributable package (if necessary)
4. Configure URL/ACL (See Appendix A)
5. Install SQL Server 2012 (SP2)
 - i. Verify there are no pending restarts on the computer
 - ii. Set up SQL2008 instance
 - iii. Run config.sql file
6. (Optional) Install SQL Server 2008 Native Client
 - i. Verify installation in Programs and Features (ETS-FREDDY does not check for this requirement)
7. Apply firewall configurations (local **AND** enterprise-wide exceptions may be required) – See Appendix B
 - i. Incoming TCP 5555 – peer-to-peer communications (exception required)
 - ii. Outgoing TCP 443 – Central Peer communications (usually open by default)
 - iii. Incoming UDP 3702 – SOAP WS_Discovery protocol (exception required)
 - iv. Outgoing UDP 3702 – SOAP WS_Discovery protocol (exception required)
 - v. Add ETS.exe as a trusted site
8. Install ETS (<https://ets.fdic.gov/ets/>)
 - i. 5% of installations *may* fail on first installation. If an error message appears:
 - Verify prerequisites via ETS-FREDDY
 - Delete ETS database from SQL Server Management Studio
 - Uninstall/Reinstall ETS
 - See [ETS Common Errors and Solutions](#) for additional troubleshooting information
9. Have examiner log into ETS to activate their ETS user profile:
 - i. Username
 - ii. Password
 - iii. PIN (hard token)
 - Soft-token: PIN number required to obtain OTP
 - iv. One Time Password (OTP)

3 – ETS Help Files

1. Navigate to <https://ets.fdic.gov/ets/>
 - i. Click on “Download Help Files”
 - ii. Run the installation
 - iii. Click Yes to begin download

4 – ETS-Training (if necessary)

1. Install ETS-Training (<https://ets.fdic.gov/ets-training/>)
 - i. 5% of installations *may* fail on first installation. If an error message appears:
 - Delete the ETS_Training Database from SQL Server Management Studio
 - Uninstall/Reinstall ETS-Training

Pre-requisite Installations Guide

The steps outlined below, while applicable to most windows configuration, may vary on each machine based on an organization's environment variables. It is suggested that these pre-requisites are installed by an IT representative. These are not in any specific order and are just for reference. Please see Preferred Installation Order above.

** Please contact the Examiner Help Desk at ehelp@fdic.gov or 1-877-334-2999, then option 2 with any questions **

1 – .NET Framework 4.6.2

The .NET Framework is a key component and should not be changed without implicit instructions.

- I. Begin *installation* (copy files locally rather than running from a network drive)

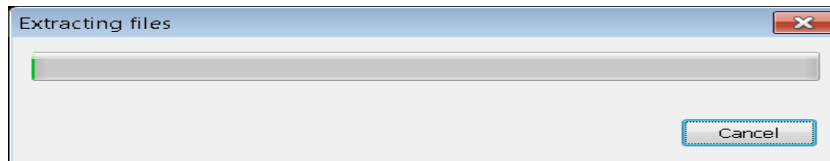


Figure 1: .NET Framework 4.6.2 Installation Extracting files dialog

- II. Select '*I have read and accept the license terms*', then Install.

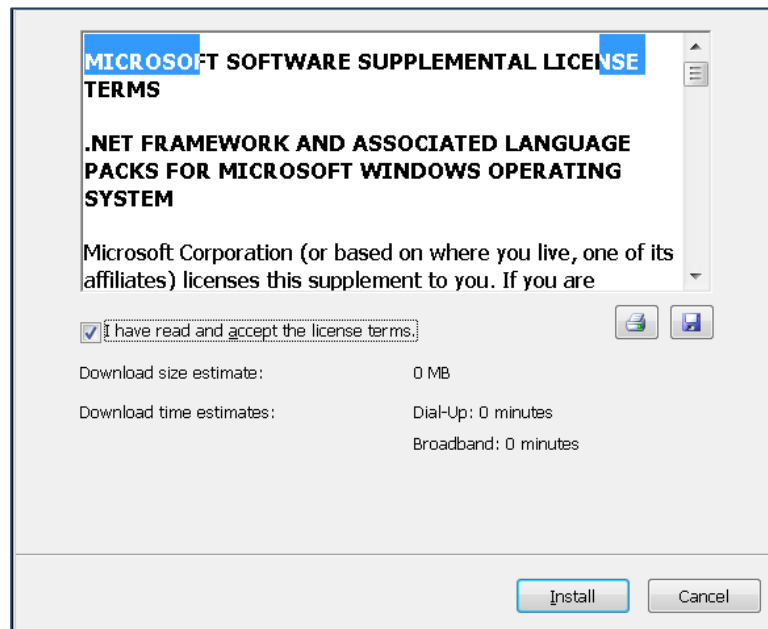


Figure 2: .NET 4.6.2 license agreement

III. Installation should be quick (no more than 5 minutes)

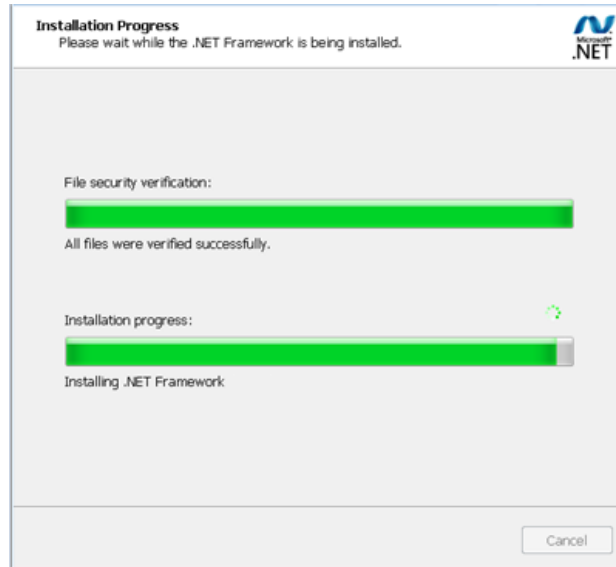


Figure 3: .NET 4.6.2 Installation Progress Dialog

IV. Installation is complete

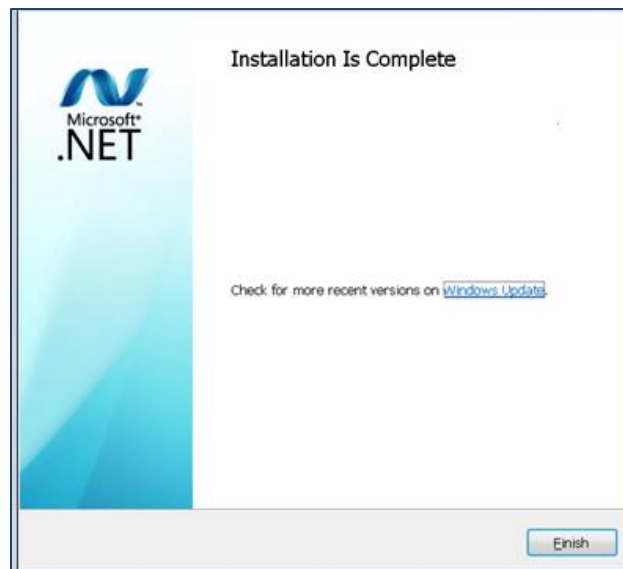


Figure 4: .NET 4.6.2 Installation Complete Confirmation

V. Verify installation from ETS-FREDDY or Programs and Features.

Microsoft .NET Framework 4.6.2	Microsoft Corporation	6/6/2017	38.8 MB	4.6.01590
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Figure 5: .NET 4.6.2 Installation Verification

VI. ****RESTART**** the PC

2 – ETS (KB2779272)

Only needed for Windows 7

This update adds support for some new glyphs, features and common fonts in Windows 7.

Download package from <http://support.microsoft.com/kb/2779272> and follow installation instructions

3 – SAP Crystal Reports (64-bit – Service Pack 18)

I. Double-click to begin installation

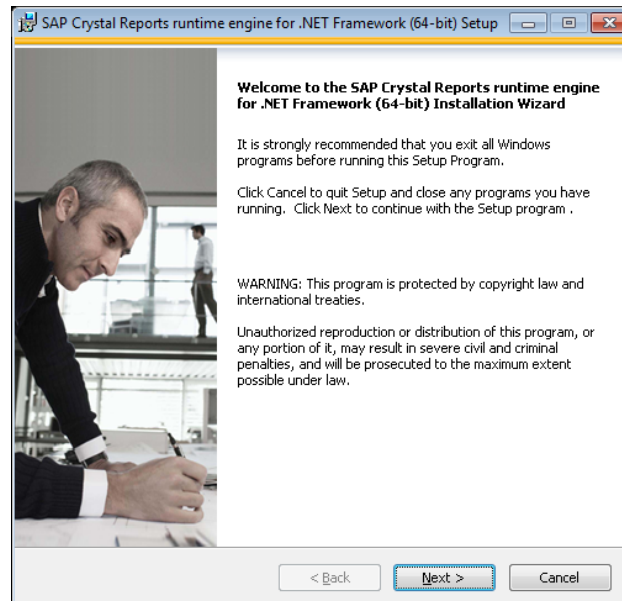


Figure 6: SAP Crystal Reports Installation Wizard

II. Click Next

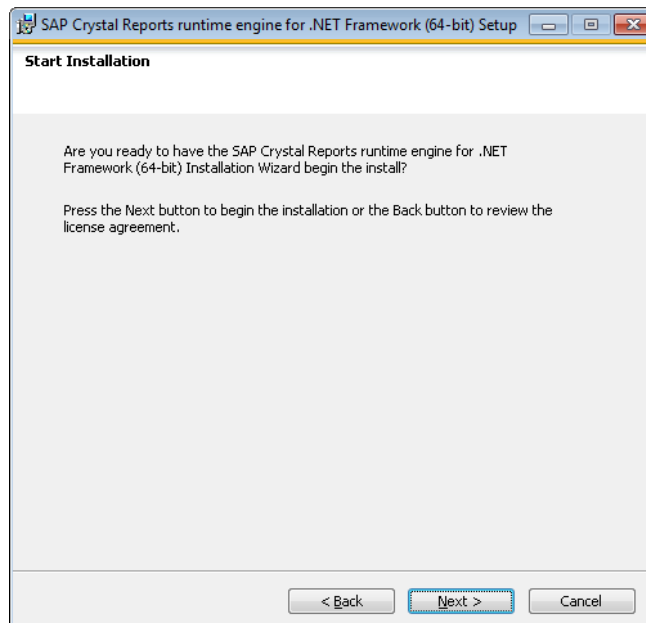


Figure 7: SAP Crystal Reports Installation

III. Select '*I accept the License Agreement*', then Next.

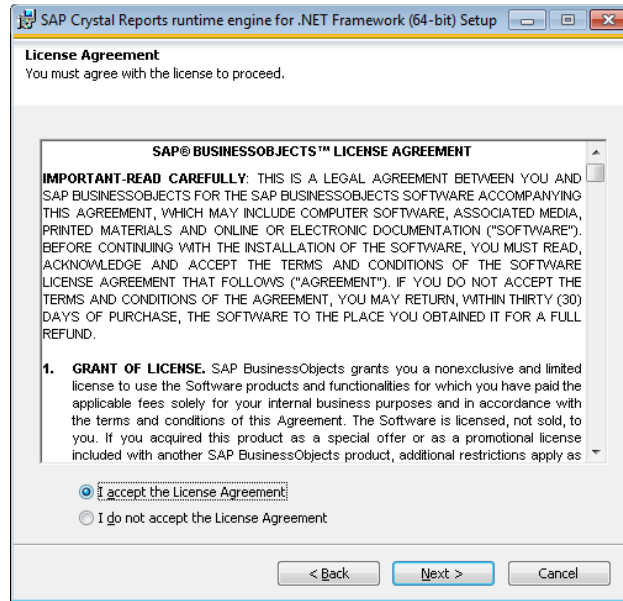


Figure 8: SAP Crystal Reports License Agreement'



Figure 9: SAP Crystal Reports Installation Progress Bar

IV. Click Finish

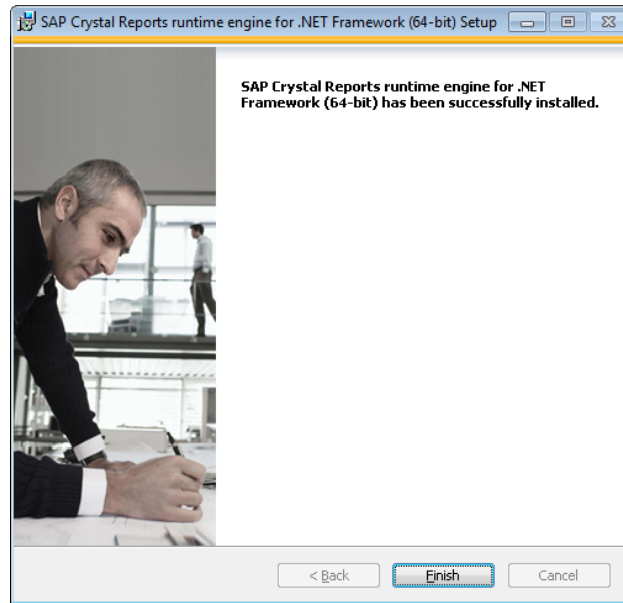


Figure 10: SAP Crystal Reports Installation Complete Confirmation

V. ****RESTART**** the PC

4 – PDFNet Driver 1.0

PDFNet is a print driver that ETS uses to produce several reports.

- I. One way to install PDFNet is with ETS-FREDDY. While running as an administrator, navigate to the 'Tools' tab and select 'Install PDFNet 1.0'

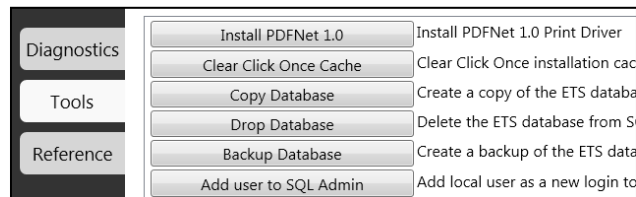


Figure 11: ETS-FREDDY - Tools Tab

- II. Alternatively - download the PDFNet 1.0 Driver from <http://pdftron.com/downloads/pdfnetDrivers.zip> and begin installation

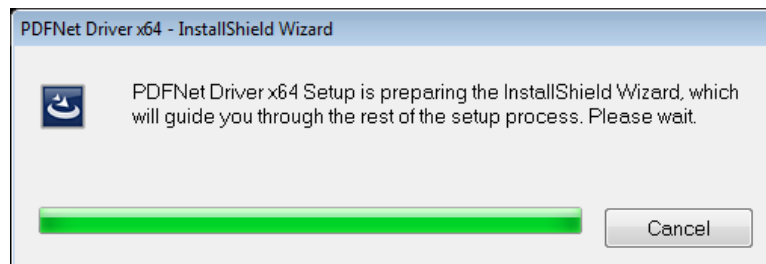


Figure 12: PDFNet 1.0 Driver Install Shield Wizard

III. Follow the installation wizard:

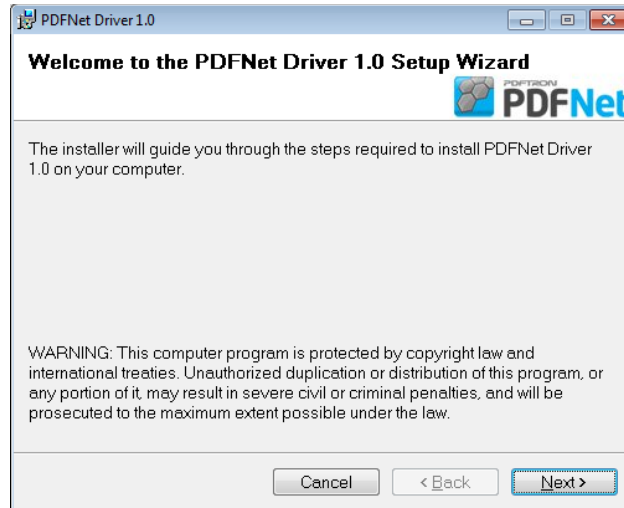


Figure 13: PDFNet 1.0 Driver Wizard

IV. Keep this file location, click Next

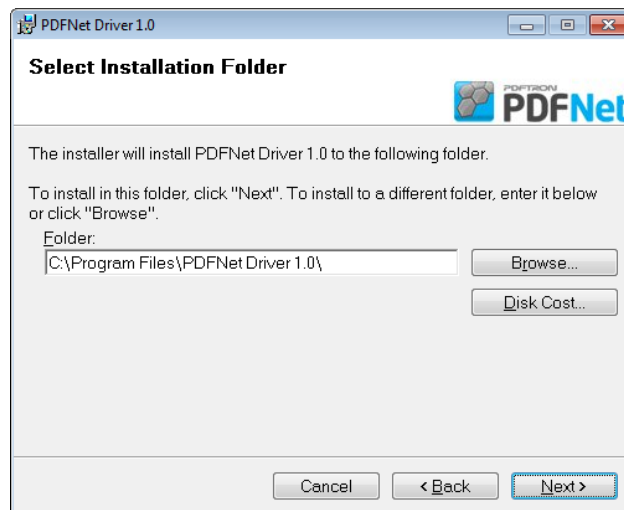


Figure 14: PDFNet 1.0 Driver Installation Folder

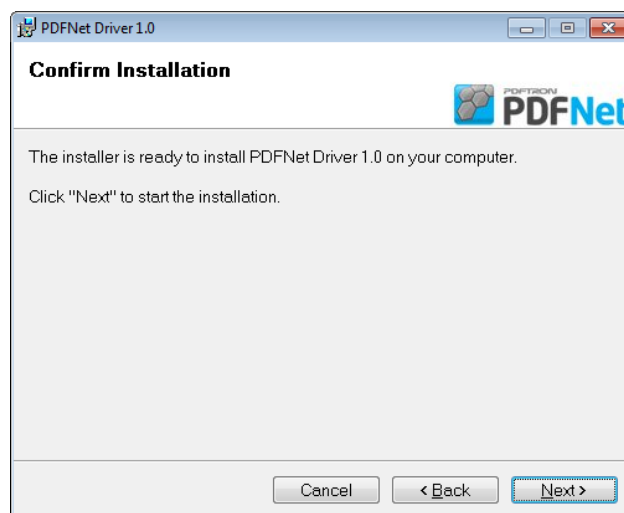


Figure 15: PDFNet 1.0 Driver Ready To Install

- V. Click 'Close' and verify installation was successful by running ETS-FREDDY checks again.

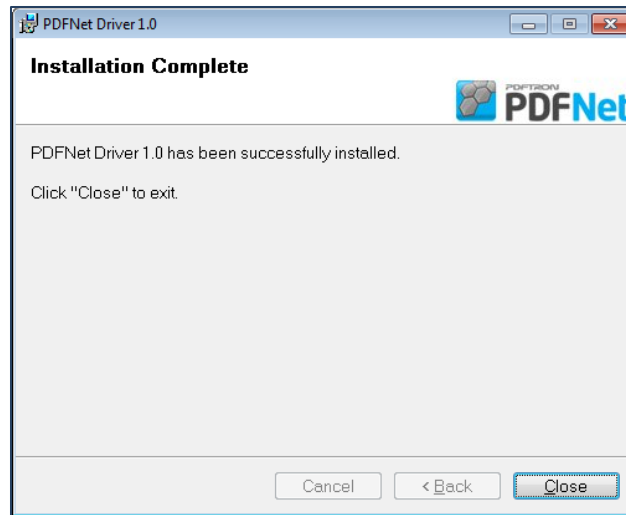


Figure 16: PDFNet 1.0 Driver Installation Complete Confirmation

5 – URL/ACL Reservation of Port: 5555

The easiest way to run this is by applying the “Fix” within ETS-FREDDY. Run the Post-Install Check, and if the URL/ACL is not configured properly, the “Fix” button will become highlighted – or run the script below as an administrator.

```
@echo off
set type=BUILTIN
set group=USERS
call :concat %type% %group%
netsh http del urlacl url=http://+:5555/ETSCollaboration > nul:
netsh http add urlacl url=http://+:5555/ETSCollaboration user="%fullGroupName%" > nul:
if %ERRORLEVEL% == 1 goto error
netsh http show urlacl
pause
goto end
:error
echo
echo Error creating new url acl - are you running as admin?
echo
goto end
:concat
set fullGroupName=%~1%~2
:end
```

6 – SQL Server 2012 Installation (Silent)

Applying prerequisites through imaging:

Many states used an image process to install the prerequisites for ETS-ALERT; a similar process can be used with the ETS prerequisites. The ETS application, however, cannot be installed through an image process. Each end user must install ETS under his or her own user profile. If ETS is installed by an administrator under their profile, the user will not be able to use ETS.

Before beginning installation of SQL:

- I. Login as an administrator
- II. Reboot the machine. If the target machine has a reboot pending from any previous software installation, etc. (identified by checking registry key HKLM\SYSTEM\CurrentControlSet\Control\Session Manager), the machine must be rebooted prior to attempting to install SQL Server.

Installation Steps:

- I. Save the **.bat** file and the **config.sql** file to the desktop on the target machine.
 - Edit each file to reflect the appropriate changes below.
- II. Download SQL Server 2012 and place in the same folder with the .bat & config files.
 - SQL 2012: <http://www.microsoft.com/en-us/download/details.aspx?id=43351>
- III. To begin the installation – execute (double-click) the .bat file.
- IV. After installation is finished – execute the config.sql file within SQL Server Management Studio.

.BAT FILE

```
"SQLEXPADV_x64_ENU.exe" <-- Same file name for SQL2008/SQL2012
/Q
/ACTION=Install
/IACCEPTSQLSERVERLICENSETERMS
/FEATURES=SQL,TOOLS
/INSTANCENAME=FDIC2008
/SQLSVCACCOUNT="NT AUTHORITY\Network Service"
/SQLSYSADMINACCOUNTS="yourdomain\YourAdminGroup" <-- Change this to your own group or individual
/AGTSVCACCOUNT="NT AUTHORITY\Network Service"
/RSSVCACCOUNT="NT AUTHORITY\Network Service"
/ISSVCAccount="NT AUTHORITY\Network Service"
/ASSVCAccount="NT AUTHORITY\Network Service"
/FILESTREAMLEVEL=2
/FILESTREAMSHARENAME="FDIC2008"
```

After making the configuration changes, return the file to its original state by:

- I. Restore the text to one continuous string (with a single space preceding each slash "/")
 - In the actual .bat file, the above will appear as a continuous string of unbroken text. For viewing purposes, we have broken up the text string into the lines above.
- II. Save the file
- III. Confirm the file extension is ".bat" (and was not changed to .txt when you edited)

CONFIG.SQL FILE

The config.sql file contains the text in the grey box below. Note the bold, blue item in the text. "etsusers" is an Active Directory network group within FDIC's "prod" domain. This set of commands assigns users within these groups to the database's "dbcreator" and "bulkadmin" roles. You must alter these commands to reference the appropriate group names (or usernames) for your organization. Do not leave the blue text unchanged; it is specific to the FDIC's environment. The dbcreator and bulkadmin roles are required by your examiner end-users. So, for agencies using Active Directory, add the domain and Active Directory groups that contain your population of users who will access ETS. Using Active Directory makes the process of adding users to these database roles much simpler. Instead of adding users

separately in this script (which would require editing for each user), adding the right Active Directory groups will authorize any users in those groups to perform the actions required in ETS.

```
exec sp_addsrvrolemember [prod\etsusers], 'dbcreator' // <-- Change to your own group or individual
go
exec sp_addsrvrolemember [prod\etsusers], 'bulkadmin' // <-- Change to your own group or individual
go
exec sp_configure 'show advanced options', 1;
go
RECONFIGURE;
go
exec sp_configure 'clr enabled', 1;
go
RECONFIGURE;
go
EXEC sp_configure filestream_access_level, 2;
go
RECONFIGURE;
go
```

How to execute the config.sql:

- I. Open Microsoft SQL Server Management Studio and click “connect”
- II. Once connected, click “open file...” from the “File” menu.
- III. Navigate to the config.sql file. The text of the config.sql file should appear in the center pane. Once the text is displayed, click the “Execute” button (red exclamation point). The command should run and a successful indication should appear near the bottom of the screen.
- IV. Exit Microsoft SQL Server Management Studio

How to execute the config.sql via Command Prompt:

The config.sql script described above may be run via the command prompt. If so, add the text “exit” to the bottom of the script before running the script from the Command Prompt. Place config.sql in the following location:

Drive:\program files\Microsoft SQL Server\100\Tools\Binn Once moved, run the following command from the command line:

Drive:[/location specific to your configuration]\sqlcmd.exe -S .\FDIC2008 -E -i “config.sql

6.1 – (Temporary) SQL Server 2008 Native Client

Due to a recent defect identified while running the Asset Review Reports, users will need to temporarily install the 2008 Native Client until the defect can be permanently fixed. This defect will ask users to log into the SQL Server Database, as seen below:

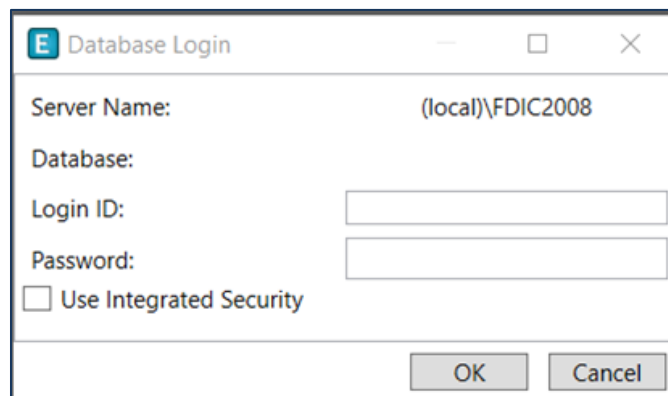


Figure 17: Database Login

- I. To install, download the appropriate .msi file below:
[X86 Package](#) (sqlncli.msi)
[X64 Package](#) (sqlncli.msi)
[IA64 Package](#) (sqlncli.msi)
- II. Once downloaded, **Run** the .msi and keep all of the default configurations. Click **Next** until the installation begins:



Figure 18: SQL Server Installation Wizard

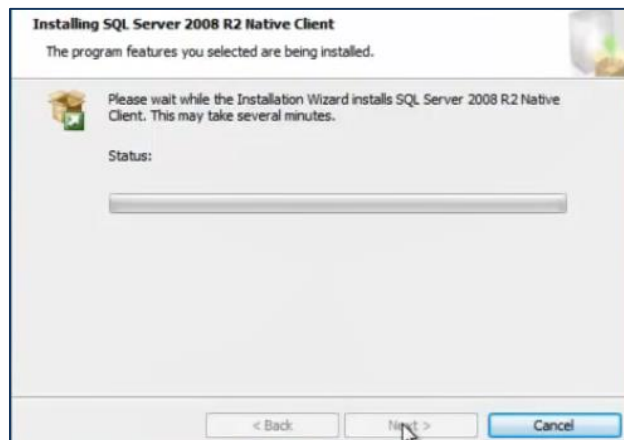


Figure 19: SQL Server Installation Progress Bar

Appendix A: Local Configuration of Port :5555

ETS uses a unique method to allow communication within the application. In order to perform peer-to-peer collaboration, port :5555 needs to be configured locally on each machine. To configure this port, you'll need to run the following script as an administrator. Copy the information below into a text file – when saving the file be sure to save it as a **.cmd** file.

```
@echo off
set type=BUILTIN
set group=USERS
call :concat %type% %group%
netsh http del urlacl url=http://+:5555/ETSCollaboration > nul:
netsh http add urlacl url=http://+:5555/ETSCollaboration user="%fullGroupName%" > nul:
if %ERRORLEVEL% == 1 goto error
netsh http show urlacl
pause
goto end
:error
echo.
echo Error creating new url acl - are you running as admin?
echo.
goto end
:concat
set fullGroupName=%~1\%~2
:end
```


Appendix B: Firewall Configuration

Generally speaking, ETS uses port 5555 for inbound TCP traffic and 3702 for inbound/outbound UDP traffic. Firewall rules must be in place that allows *both* inbound and outbound traffic. The screenshots and instructions below are for Windows Firewall. You may need to modify these if you are using different software. It is likely that examiners will not be able to change these settings; they will likely require administrative rights.

I. Open Windows Firewall with Advanced Settings

- Right-click on either *Inbound Rules* or *Outbound Rules* in the upper left corner and select *New Rule*.
- Select the *Port* radio button and enter "5555" (or UDP for *Specific Local Ports*, then select *Next*.)
- Select the *Allow the Connection* radio button, then select *Next*.
- Check the boxes for *Domain*, *Private*, *Public* profiles, then select *Next*.
- Name the new rule. I used the name *TCP 5555* but you may choose any name.
- Click *Finish*.

II. Locate your new rule in the body of the screen.

- Right click your new rule and select *Properties*.
- Edit each tab in the *Properties* menu as follows:

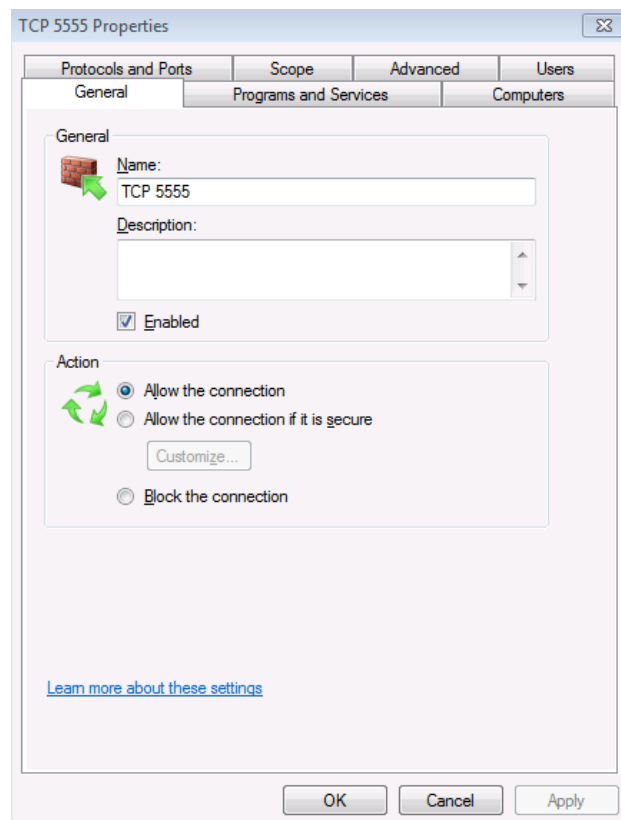


Figure 20: TCP Port Properties – General Tab

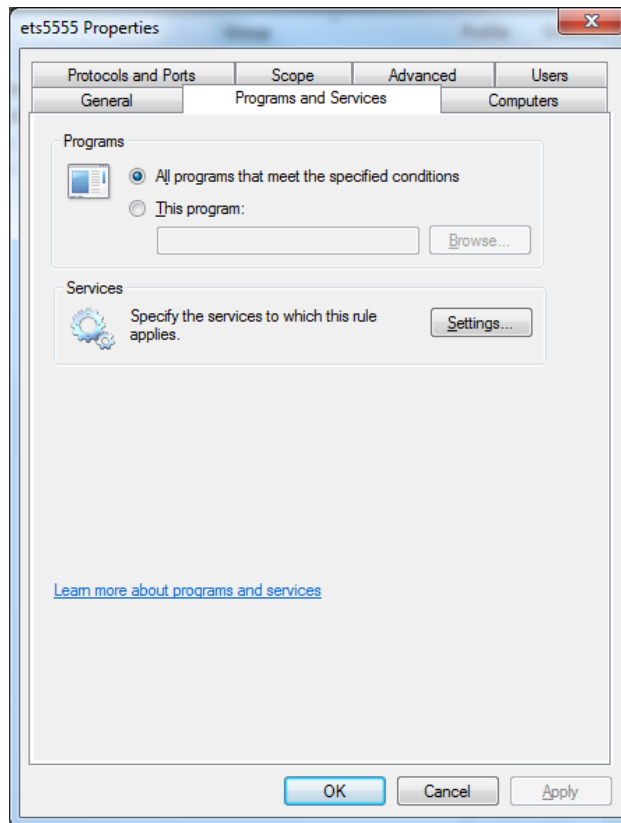


Figure 21: TCP Port Properties – Program and Services Tab

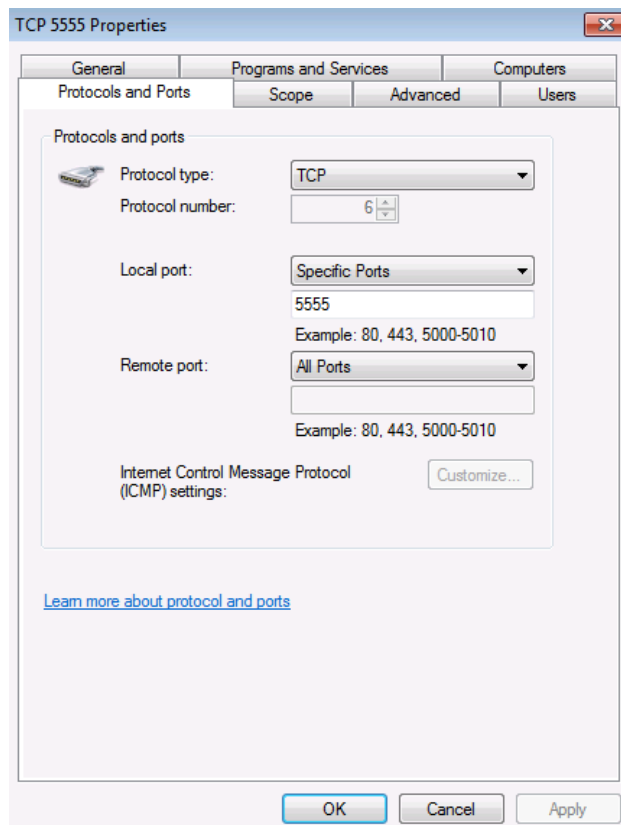


Figure 22: TCP Port Properties – Protocols and Ports Tab

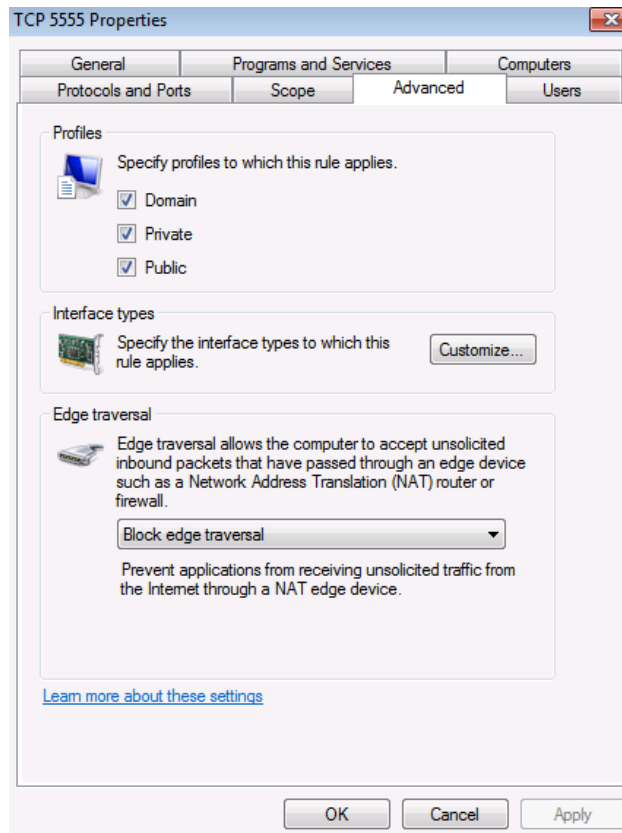


Figure 23: TCP Port Properties – Advance Tab

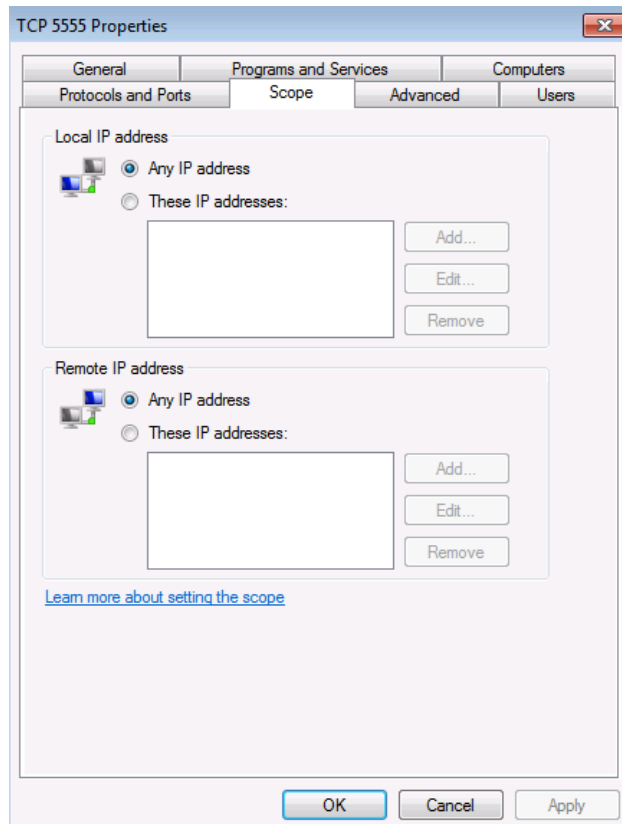


Figure 24: TCP Port Properties – Scope Tab

Note: port 5555 only needs to be open for local non-routable IP addresses. This is required for peer-to-peer collaboration over an ARUBA (or another similar device).

- III. The settings options for the *Computers* and *Users* tabs can remain unchecked, which is how they default.
- IV. You can use these same instructions to set up the 3702 exception – just replace 5555 with 3702.
- V. Once you have changed the properties of your newly created rule to mirror the screenshots above on each tab (except *Computers* and *Users*), click *Apply*.